DOCUMENT RESUME

ED 247 043 RC 014 817

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TITLE Vivir O Morir? The Effects of Radio on Health Education for Hispanics.
INSTITUTION Baylor Coll. of Medicine, Houston, Tex.
SPONS AGENCY National Heart and Lung Inst. (DHHS/NIH), Bethesda, MD.
PUB DATE Nov 83
GRANT HL17269
NOTE 17p.; Paper Presented at the Annual Meeting of the American Public Health Association (111th, Dallas, TX, November 13-17, 1983).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Behavior Change; *Cardiovascular System; Diabetes; Females; *Health Education; *Hispanic Americans; Hypertension; *Information Dissemination; Mass Media Effects; Media Research; Obesity; Program Development; *Program Effectiveness; Program Implementation; Programing (Broadcast); Public Health; *Radio; Spanish Speaking
IDENTIFIERS Texas

ABSTRACT

Because of the higher-than-average risk of hypertension, obesity, and diabetes among Hispanics, researchers selected these three health problems as the focus of a "radio novela" intended to increase the health knowledge and awareness of a Hispanic target audience and to stimulate their response to the problems. The replicable health communication program consisted of five 5-minute radio episodes, each discussing one risk factor and its symptoms, diagnosis, treatment, and prevention. The episodes centered around a young doctor whose mission was to help his community learn to prevent the three health risks. The final episode urged participation in a subsequent health fair. The episodes were broadcast twice a day over five days on a popular Spanish radio station in Richmond/Rosenberg, Texas. Pre- and post-tests with groups of adult Hispanic females and follow-up conversations with health fair participants indicated that most listeners were more concerned with obesity than with hypertension or diabetes, but that listener concern with all three problems rose as a result of the programs. Also, listeners' knowledge rose significantly in some areas but not regarding symptoms. Among listeners, 39% took action regarding their health. Listeners were more likely to attend the health fair. Researchers concluded that radio messages can be an effective health education strategy. (SB)

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ED247043

"VIVIR O MORIR?": The Effects of Radio on Health Education For Hispanics*

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Presented to:

American Public Health Association
111th Annual Meeting
November 13-17, 1983
Dallas, Texas

Thursday, November 17, 1983
8:30a.m. - 10:00 a.m.
Hilton Embassy Ballroom
Section East

RC014817

*A grant-supported research project of the National Heart, Lung and Blood Institute of Health, #HL17269.

Abstract

Hispanics comprise the second largest and fastest growing minority group in the United States. Recent research has documented that Hispanics appear to be at higher risk for developing several disorders related to heart disease, including hypertension, obesity, and diabetes. Studies also indicate that, in general, Hispanics are less knowledgeable of and have less positive attitudes toward the prevention of heart disease. Their relative lack of preventive behaviors are consistent with this lack of information and motivation. As yet, few studies have attempted to address these problems through mass media health promotion strategies. Thus, the purpose of the present study was to develop a replicable health communication radio program, a radio novela, for a Hispanic target population that would increase awareness and knowledge of high blood pressure, obesity, and diabetes, and stimulate audience response aimed at preventing these problems.

The novela consisted of five episodes, each five minutes in length. Each episode discussed one of the risk factors, its symptoms, diagnosis, treatment, and prevention. The story centered around a young doctor just returned to his home town to practice medicine and help his community learn about preventive health. The series concludes with a promotion for a health fair to be screened, talk to medical professionals, and learn more.

A random sample of Hispanic adult females was pretested before the novela and health fair, and a separate and panel groups were posttested afterward. Follow-up of the health fair participants was also conducted. Results of the study indicate that radio messages can increase audience knowledge, awareness, and preventive actions. Of those who listened to the program, 30% said it caused them to take some action regarding their health. Future research is needed to determine the optimal program scheduling to achieve maximum audience reach.

The unique health problems and needs of Hispanics have only recently begun to be studied. Until 1950, separate data on Hispanics was unavailable and since then classification categories have been inconsistent. However, recently several studies have documented a higher incidence of several cardiovascular risk factors among Hispanics than among the general population. For a number of reasons, Hispanics are at higher risk than the general population for hypertension, obesity, and diabetes[1,2,3]. Data is also beginning to accumulate regarding the knowledge, attitudes, and behavior that Hispanics as a group exhibit toward these and other health problems related to heart disease[4,5,6,7,8]. Although our knowledge of Hispanic needs has increased in the past few years, still almost no information exists on the use of the mass media in communicating health information on these topics to the Hispanic community. Thus, the goal of the present study was to develop a replicable health communication model which would increase awareness and knowledge of high blood pressure, diabetes, and obesity and to stimulate audience response aimed at preventing these problems.

Hispanics comprise the second largest and fastest growing minority group in the United States. Between 1970 and 1980, the Hispanic population increased by over 60%. It is estimated that by 1990, Hispanics are expected to comprise 20% of all U.S. residents[9]. Continued growth is expected due to the youthfulness of the Hispanic population: its median age is 23, and one-third of its population is under 15. Further, many Hispanic women are just entering the peak childbearing years, suggesting sustained population growth among Hispanics[10].

Hispanics are not as healthy as the larger population in general[11]. Several health problems in particular appear to be more common among Hispanics

than among the general population. Research indicates that Mexican Americans, are at higher risk than the general population for several health problems related to heart disease, including high blood pressure, obesity, diabetes, triglycerides, and serum cholesterol[1,2,3,8]. Research indicates that Mexican Americans are more likely to be obese than Anglos, even when SES is controlled[8]. Estimates are that as many as 45% of Mexican American women and 26% of Mexican American men are 20% or more over their desirable weight, compared to the national rate of 29% and 16%, respectively, for white non-Hispanics women and men (Hanes I).[1] Hypertension is also a major health problem within the Hispanic population, with estimates placing Hispanic rates intermediate between those observed nationally for blacks and whites. Among older Hispanic women, the rates actually exceed those for blacks.[2] Mexican Americans also are consistently found to be at significantly higher risk for diabetes than Anglos, even when obesity is controlled, leading many researchers to postulate at least a partial genetic causal factor.[3]

It has been suggested that virtually all Hispanic morbidity/mortality differentials are due to SES differentials[11]. Hispanics are more likely to have a lower than average family income, a higher than average family size, and a much lower level of educational attainment[10]. These factors, in addition to possible cultural and linguistic barriers to health care, serve to increase the risk of health problems and to decrease the availability of health care and preventive knowledge.

Often health promotion or health education efforts directed toward the Hispanic community are ineffective because they fail to accomodate the particular characteristics of the targeted population. It is essential to assess the current levels of knowledge, the attitudes and practices of the target audience.

Research on the levels of knowledge regarding the prevention of heart

disease within the Hispanic population indicates that Hispanics do not have adequate knowledge on heart disease prevention and are usually less knowledgeable than whites. There is some evidence that knowledge among Hispanics is directly related to SES, with poor Hispanics having the least knowledge[4,6,7]. There also appear to be ethnic differences in attitudes and behaviors regarding preventive health, with Mexican Americans being more likely to express less sense of control over their health than which non-Hispanics. Reported behaviors tend to be consistent with these attitudes[8].

Because of Hispanics' less frequent contact with medical professionals from which to obtain information, it is not surprising that several studies have found that Hispanics also rely on the mass media as a source of health information[12]. Our own research with television PSAs has demonstrated the effectiveness of health promotion strategies that are specifically designed to meet the needs of Hispanics. We were able to reach over one third of the Houston Hispanic population with our messages on hypertension and had effective recall of the content of the messages and recommended action.

However, although the mass media appears to be a useful and acceptable strategy for health promotion with Hispanics, research the on the use of radio as a media for reaching the Hispanic community is virtually nonexistent. Thus "Vivir o Morir" was a first attempt to develop, implement and evaluate a health promotion strategy for radio that would be culturally appropriate and sensitive to a bicultural/bilingual Hispanic target population. Because of the higher than average risk of hypertension, obesity, and diabetes among the Hispanic population, these three health problems were selected as the focus of the health messages.

Based on adoption theory,[13] which conceptualizes health education and its effects as occurring in stages, the Radio Novela project had four major components: 1) to increase target audience <u>awareness</u> of three specific cardiovascular

risk factors (this corresponded to the promotional stage, before the airing of the novela); 2) to stimulate audience interest in the health problems (to listen to the novela); 3) to facilitate audience evaluation or assessment of the health issues (evaluation was assessed by differences in knowledge ard attitude items between pretest and posttest); ano 4) to promote audience health related action after adoption of the information (action was assessed by attendence at health fair and subsequent compliance with recommendations/ referrals.)

METHODOLOGY

The Radio Novela used a quasi-experimental, separate sample pretest-posttest design. The pretest involved 500 subjects. The posttest also involved 500 subjects. Two hundred (200) were subjects already interviewed in the pretest (the panel sample) and 300 were new subjects. All subjects were randomly sampled. Both pre- and posttests were telephone surveys conducted by a private research firm.

Subjects. The Mexican American adult population residing in the Richmond/ Rosenberg, Texas area was the target population for the Radio Novela program. The total Hispanic population of Richmond is 3,564, while in Rosenberg it is 7,153. This represents 36.8% and 39.9% of the total population, respectively. These adjacent communities were selected because of their large Mexican American populations (combined = 38.7%), and because of their close proximity to Houston. The population was screened to obtain our target sample of Hispanic women between the ages of 18 and 65. The target audience was limited to females because they were assumed to be more frequently the family's caretaker and more frequent listeners of Spanish radio.

Several screening questions were used to determine whether the respond- was Hispanic. First, respondents were asked if Spanish was spoken as a family language in their household (all or the time, some of the time, rarely,

or never). Second, they were asked if anyone in the household was of Hispanic background. Finally, they were asked how many females in the household were between the ages of 18 and 65. If Spanish was spoken all or some of the time, and if there was a Hispanic women in the household aged 18 to 65, the household was included in the sample and the interviewing proceeded.

The next three slides display the sample selection of the pretest, the panel posttest and the new sample posttest. The response rates for each sample was quite good, at 77.6, 87.5, and 75.5%, respectively. The next slide presents the number and percentage of the Hispanic population for the two communities, the number and percentage of housing units occupied by Hispanics, and the number of telephones in Hispanic households. Although Hispanics in this area comprise 38.7% of the total population, they occupy only 29.5% of the housing units, indicating a larger number of persons per housing unit among Hispanic families. Overall, an estimated 87% of all households in the area have telephones, with 92% of non-Hispanic and 75% of Hispanic households having telephones. The reasons that Hispanics have fewer telephones is apparent when one considers that many families, sharing the same dwelling units, but considered as separate households, share telephones.

Despite the lower proportion of telephone usage among Hispanics, the telephone is the least intrustive and therefore least reactive method of conducting research with this population. Random digit dialing was used, and is the most effective method of reaching all households with telephones. The same procedures and interviewers were used in the pretest and the two posttest sample interviews. All interviewers were bilingual and respondents were given a choice of language in which to be interviewed. Nearly 35% chose to be interviewed in Spanish.

Materials. The content of the questionnaire was based on the three

cardiovascular risk factors for this population--hypertension, obesity, and diabetes. For each risk factor, items were included on the symptoms, prevention, control, and the respondent's perceived susceptibility to them. Items were also included to assess respondent's recent experience with health screening, sources of information about the three topics, and demographic characteristics. The posttest included the same items in addition to specific questions about respondents' experiences and reactions to the novela and health fair intervention. A separate questionnaire was also used to follow-up health fair participants who had been referred for further medical care.

Prior to the development of the program, several focus groups were conducted with members of the Hispanic community to determine whether the community was interested in learning about these risk factors and whether a radio novela was a viable channel for delivering this type of information. These focus groups were used throughout the development of the programs in order to develop culturally sensitive and relevant health messages.

The radio novela consisted of five different episodes, each five minutes in length. Each episode discussed one of the risk factors and its relationship to heart disease, its symptoms, how it could be prevented, and what should be done about it. The story centered around a young doctor, recently returned to home-town to practice medicine, whose major mission is to help his community learn about how they can prevent these risk factors. The series concludes with how participating in a health fair can help you learn more about these risk factors. The theme and title of the novela is "vivor o morir," "to live or to die." The focus group felt that a dramatic title was necessary to draw the listerner's attention. The novela was pretested with a separate focus group. Each episode was aired twice a day on a popular Spanish radio station, once at 10:15 a.m. and at 6:45 p.m. The novela was aired for five days.

The health fair was developed to determine whether the radio novela would prompt the audience to take some health related action. The health fair was also well supported by the community. The health fair was held in a large church in the area, and included community support in terms of donated food (for the demonstration of low-fat cooking), coupons for lowfat food items, and medical personnel to give lectures, screenings, and informal talks with participants.

RESULTS

Sample demographics. A comparison between the total pretest group and the panel group indicated that the panel sample was similar to the overall group, and thus a representative sample (NEXT SLIDE). Significance is based on the chi-square test. All samples were evenly distributed by age and education level. A majority (about 80%) of the women were married, with about 40% being homemakers, and an equal percentage working full time outside the home. A majority (about 35%) of respondents had an annual household income greater than $20,000. More than three-fourths of the respondents were born in the U.S. Nearly all the subjects said Spanish was spoken in the home all or some of the time. The only significant differences among the three samples occured for income and preferred family language, with the new posttest sample having proportionately more subjects with incomes less than $20,000, and being more likely to say Spanish is spoken in the household all of the time. (It is expected that for any random sample, some significant differences will occur as a result of chance alone.)

Awareness and experience with risk factors. (NEXT SLIDE). One of the major objectives of the study and a component of the adoption model was to increase awareness of the risk factors. Subjects were therefore asked both before and after the radio novela and health fair whether they thought they were overweight, or had high blood pressure or diabetes, whether they were diagnosed by a

doctor, and if they were concerned about getting it in the future.

As you can see from the slide, subjects were most concerned about obesity. Nearly 60% reported being overweight, although only 40% had been told so by a doctor. These percentages showed no significant differences between pre- and posttest. A majority also said they were concerned about becoming overweight. The concerned percentage did show a significant ($p<.01$) increase from pretest to posttest, going from 71% to 79%.

A different pattern of responses was obtained regarding hypertension. Only 17% of the subjects thought they had hypertension, despite the fact that 20% reported being diagnosed so by a doctor. A significantly higher percentage ($p<.01$) said they did not know if they had high blood pressure at the time of the posttest, indicating greater uncertainty about their susceptibility. Likewise, a much smaller percentage were not concerned about getting hypertension on the posttest ($p.<01$).

Less than ten percent of respondents thought they had diabetes. The percentage of subjects who said they did not have diabetes decreased significantly at the posttest. As with hypertension, this difference was directly related to the higher number of subjects who responded "don't know" on the posttest than on the pretest. There was also a significant increase ($p<.01$) in the percentage of respondents concerned about getting diabetes from the pre- to the posttest. The change was due primarily to a decrease in the number of people who said they were not concerned, again indicating greater uncertainty about their susceptibility.

Knowledge of Risk Factors. The second component of the adoption model and major objective of the Radio Novela project, was to increase the target population's knowledge about the three risk factors. In a series of true-false qustions on this topic (see next slide), posttest knowledge levels were significantly higher ($p<.01$) than pretest scores on three items:

1) posttest respondents were more likely to know that hypertension is the same as high blood pressure; 2) that hypertension increases the risk of heart attack; and 3) that obesety increases the likelihood of diabetes.

There were few significant increases in knowledge of symptoms from the pretest to the posttest. (NEXT SLIDE) Subjects from both the panel and the new posttest sample completely rejected headaches as a symptom of hypertension for a significant ($p<.01$) difference from the pretest. However, this change was not accompanied by a significant increase in the correct response, "no symptoms," which was known by only 2% of the subjects. In fact, overall, incorrect responses actually increased for symptoms of hypertension on the posttest. There were no significant differences in knowledge of symptoms of diabetes. There was a significant increase ($p<.01$) for knowledge that a blood test could be used to diagnose diabetes.

Impact of Radio Novela. All posttest respondents were asked a series of questions designed to measure the impact of the radio novela. (NEXT SLIDE) Of 494 subjects, 17% reported hearing a Spanish radio novela about health. When asked specifically if they heard "Vivir o morir," 12% said they had. Of those who did listen to the novela, one-fourth heard one episode, one-third heard two episodes, another fourth listened to three, and 16% heard it four or more times. Out of the subjects (76) who reported hearing the program, 45% named high blood pressure as the disease discussed, 42% said heart disease, and 18% said diabetes. Only 8% of the subjects mentioned obesity. Thirty-nine percent (29 out of 75) said the novela caused them to take some action about their health. The most common action was to go for a check-up. Other responses were to watch their weight, diet, or exercise. A significantly greater ($p<.05$) proportion of the panel respondents reported that the novel caused them to take some action. Respondents who heard the novela were significantly more likely to have attended the health fair ($p<.01$).

Thirteen percent of novela listeners attended the health fair, compared to only 3% of the respondents who were non-listeners.

Action Measure--Health Fair Posttest Responses. Twenty posttest subjects (4%) attended the health fair held after the radio novela. These subjects reported active participation in health fair activities, including talking to health professionals, getting screened for health problems, attending lectures and generally learning more about health. Eighteen (90%) of the attending posttest subjects said they were advised to take further action about their health, and fourteen said they complied with this advice.

Action Measure--Health Fair Follow-Up. (NEXT SLIDE) A total of 128 adults attended the health fair. A majority (65%) were female, and the mean age was 39 years. Most of the attendees (86%) had never attended a health fair before. Ninety-four referrals or recommendations for further health care were given during the screening process. Some participants were referred for more than one risk factor. Of the referrals and recommendations 61 (47.7%) were for weight loss/control, 24 (18.8%) for blood pressure control, and 9 (7.1%) for further diabetes testing.

A brief telephone survey was conducted with health fair participants who had been referred for fruther medical care. Results are based on the 40 completed interviews. (NEXT SLIDE). The percent of those who had taken the the suggested action was quite high for all risk factors, although the blood pressure group was most compliant. Eighty-eight percent of that group followed up on the referral, compared to approximately two-thirds of the weight and diabetes groups. Subjects were also asked what actions they had taken. These results are presented in the NEXT SLIDES. The most common action among the blood pressure group was to decrease salt consumption. Of subjects in the weight group, approximately one-third reported eating less, exercising, and watching their diet. Three-fourths of the diabetes subjects made doctor

or clinic appointments and/or talked to a doctor.

DISCUSSION

So, what are the major implications from the radio novela project? First, several comments on the limitations of these data. Since only a small percentage of the posttest sample actually were exposed to the interventions, the few significant changes in awareness and knowledge may have been produced by external variables, such as exposure to other sources of information. Also, it should be kept in mind the results of this study were obtained from a sample of Hispanics located in a largely urban environment, all of whom were women (except for a minority of males attending the health fair), and most of whom were Mexican American. Hispanics in other geographic regions and in other types of environments, such as non-urbanized or rural environments, might respond quite differently to such a program. With that said, we believe several conclusions can be drawn from the data.

First, it appears that radio be an effective media format for promoting health action within an Hispanic population. Of those who listened to the novela, a sizeable proportion, 39%, said it caused them to take some action about their health.

Second, it appears that radio messages can increase audience knowledge about health issues. Significant increases were found between posttest and pretest samples on a number of the items, particularly those regarding high blood pressure.

Third, in spite of the limited airing given the novela, significant differences were found in terms of perceived susceptibility to risk factors between pretest and posttest samples, indicating that radio messages can have a significant effect on listeners' awareness of health problems.

Fourth, although only 4% of the posttest respondents attended the health fair, those who did participate were quite active in terms of screening,

learning information, and subsequently following referrals and recommendations.

Finally, in this study significant reach was not obtained by only airing the program two times per day for five days. Sixty-five percent of posttest respondents said they listen to Spanish radio all or some of the time, and half of them reported listening to the station on which the novela was broadcast all or some of the time. Due to the listening habits of the audience, though, only 12% said they heard the novela "Vivir o Morir." One implication of these results is that future research is needed which will determine the optimal and most efficient schedule of programming necessary for achieving maximum audience reach.

In conclusion, the development of radio novelas such as "Vivir o Morir" for the use of Spanish language radio and appear to be culturally appropriate and effective health promotion strategy for increasing Hispanic's awareness and knowledge of heart disease risk factors and for motivating subsequent action. The procedures outlined in this presentation will hopefully provide useful guidelines for the development of effective public health education programs for Hispanic populations.

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